

ends are distributed around the piston as shown in **Figure 101**. The important thing is that the ring gaps are not aligned with each other when installed.

10. If new rings were installed, measure the side clearance of each ring in its groove with a flat feeler gauge (**Figure 97**) and compare to dimensions given in **Table 1**.

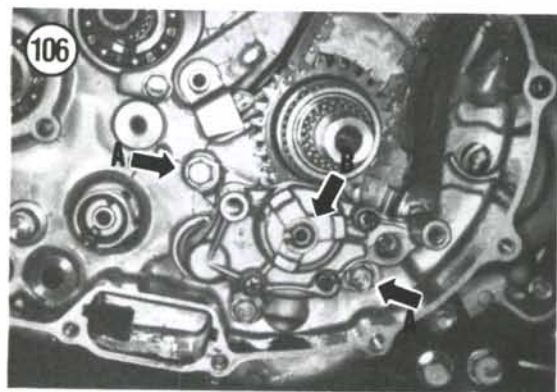
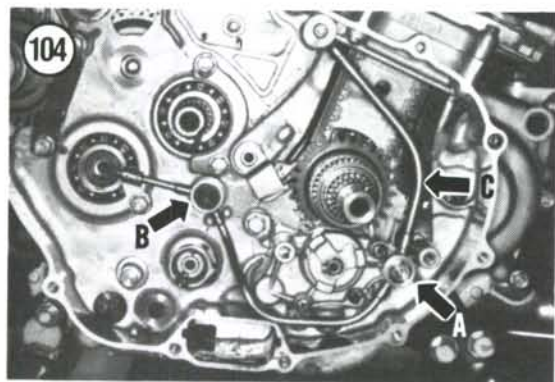
11. Follow the *Break-in Procedure* in this chapter if a new piston or piston rings have been installed or the cylinder was rebored or honed.

OIL PUMP AND PRIMARY DRIVE GEAR

The oil pump is located on the right-hand side of the engine forward of the clutch assemblies. The oil pump and primary drive gear can be removed with the engine in the frame.

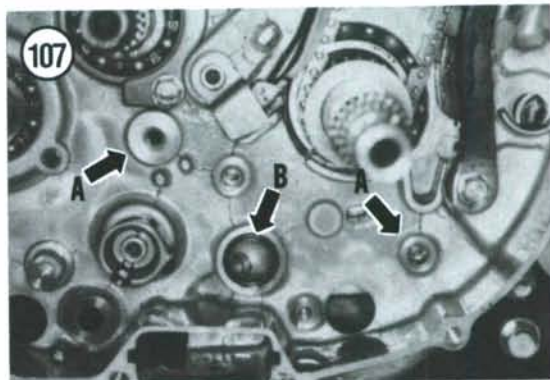
Removal

1. Drain the engine oil as described in Chapter Three.
2. Remove the right-hand crankcase cover as described in this chapter.
3. Remove the centrifugal clutch assembly (**Figure 102**) as described in Chapter Seven.
4. Remove the bolts securing the oil separator plate (A, **Figure 103**) and remove the plate.
5. Remove the manual clutch assembly (B, **Figure 103**) as described in Chapter Seven.
6. Remove the union bolt (A, **Figure 104**) and the black bolt (B, **Figure 104**) securing the oil pipe assembly to the crankcase.
7. Remove the oil pipe assembly (C, **Figure 104**). Don't lose the O-ring seal (**Figure 105**) at the upper end of the oil pipe.
8. Remove the bolts (A, **Figure 106**) securing the oil pump and remove the oil pump assembly (B, **Figure 106**).
9. Don't lose the locating dowels (A, **Figure 107**) and O-ring seal (B, **Figure 107**) in the crankcase.
10. Inspect the oil pump as described in this chapter.
11. To remove the primary drive, slide off the primary drive gear (**Figure 108**) and the thrust washer.



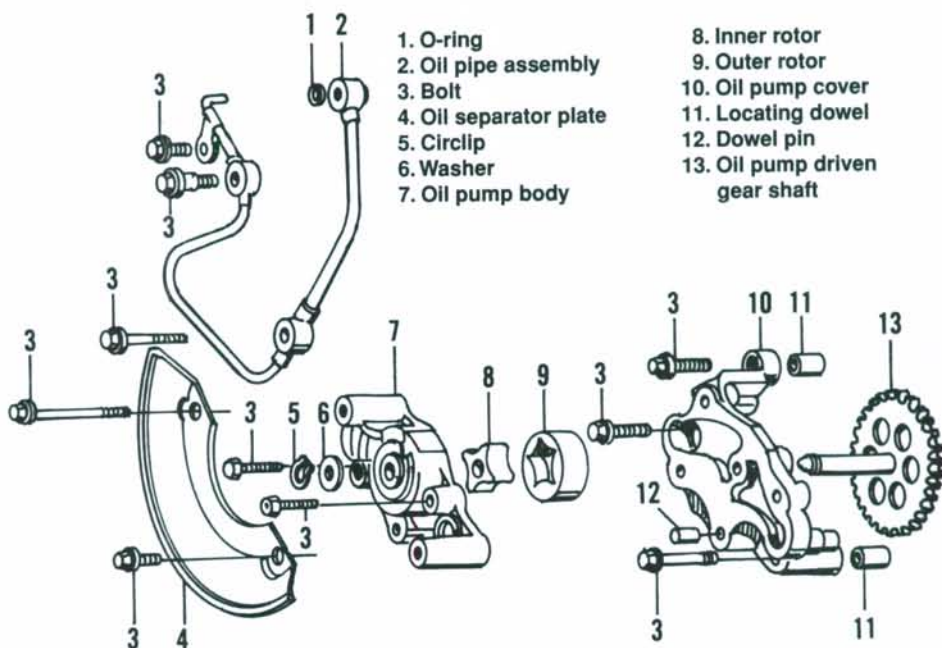
Installation

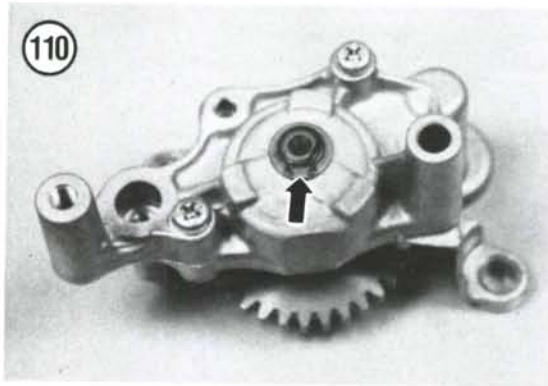
1. To install the primary drive, slide on the thrust washer and then install the primary drive gear (**Figure 108**).
2. Make sure the locating dowels (A, **Figure 107**) and O-ring seals (B, **Figure 107**) are in place and install the oil pump assembly. Tighten the bolts securely (A, **Figure 106**).
3. Install the oil pipe assembly (C, **Figure 104**). Install a new O-ring seal (**Figure 105**) at the upper end of the oil pipe.
4. Install the union bolt (A, **Figure 104**) and black bolt (B, **Figure 104**) securing the oil pipe assembly to the crankcase. Tighten the union bolt to the torque specification listed in **Table 2**.
5. Install the manual clutch assembly (B, **Figure 103**) as described in Chapter Seven.
6. Install the oil separator plate (A, **Figure 103**) and the bolts. Tighten the bolts securely.
7. Install the centrifugal clutch assembly (**Figure 102**) as described in Chapter Seven.
8. Install the right-hand crankcase cover as described in this chapter.



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OIL PUMP AND PRIMARY DRIVE GEAR





9. Refill the crankcase with the recommended type and quantity of engine oil, as described in Chapter Three.

Disassembly/Inspection/Assembly

Refer to **Figure 109** for this procedure.

1. Remove the E-clip and washer (**Figure 110**) on the driven gear shaft.

2. Remove the Phillips head screws (**Figure 111**) securing the pump cover to the body and remove the cover.

3. Remove the inner and outer rotors. Inspect both parts for scratches and abrasions. Replace both parts if evidence of this is found.

4. Clean all parts in solvent and thoroughly dry. Coat all part with fresh engine oil prior to assembly.

5. Inspect the oil pump body and cover for cracks (**Figure 112**).

6. Inspect the teeth on the driven gear. Replace the driven gear if the teeth are damaged or any are missing.

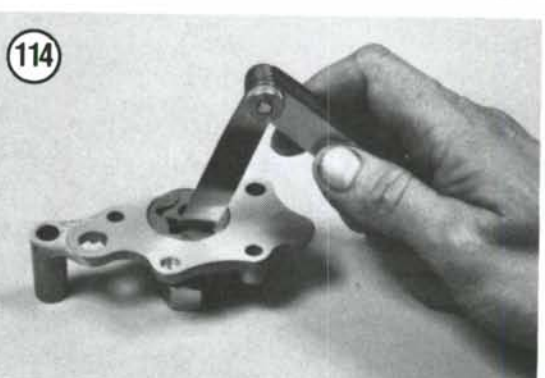
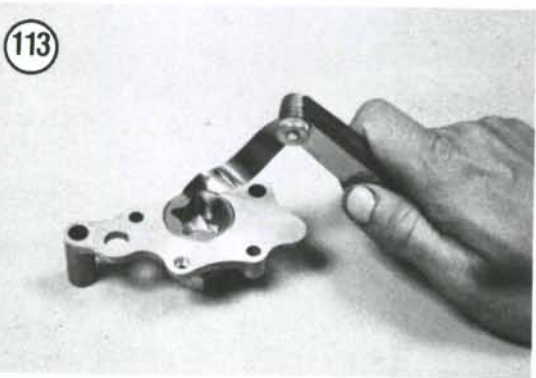
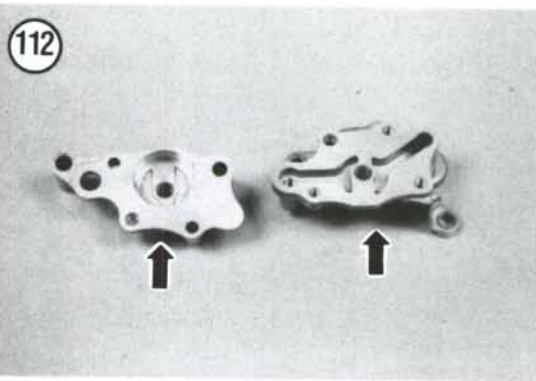
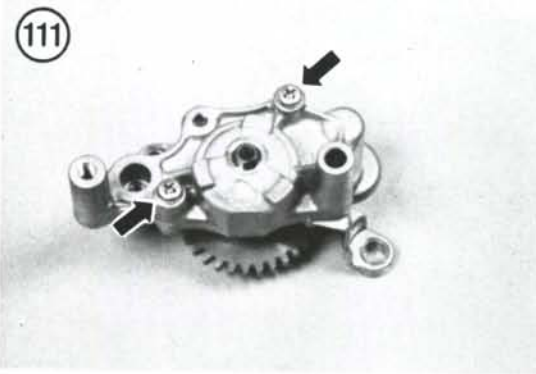
7. Install the outer rotor into the oil pump body.

8. Using a flat feeler gauge, measure the clearance between the outer rotor and the oil pump body (**Figure 113**). Compare to specifications listed in **Table 1**. If the clearance is worn to the service limit dimension or greater, replace the worn part.

9. Install the inner rotor into the outer rotor in the oil pump body.

10. Using a flat feeler gauge, measure the clearance between the inner rotor tip and the outer rotor (**Figure 114**). Compare to specifications listed in **Table 1**. If the clearance is worn to the service limit dimension or greater, replace the worn part.

11. Install the driven gear into the oil pump cover (**Figure 115**).



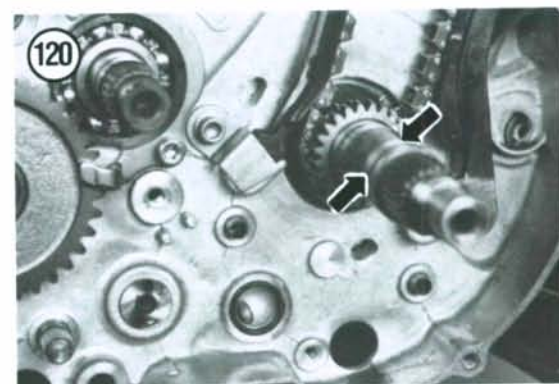
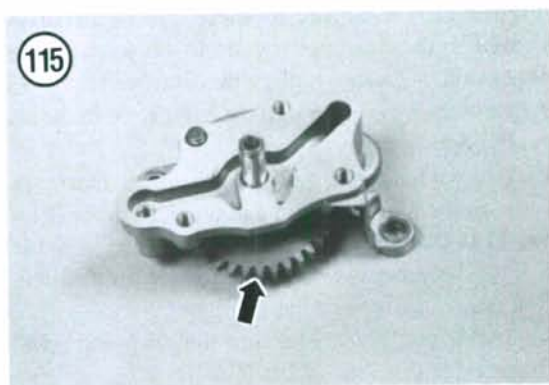
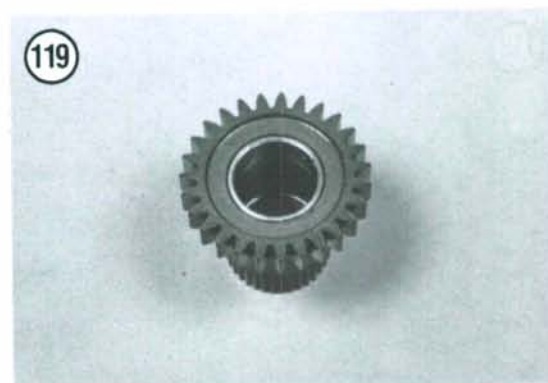
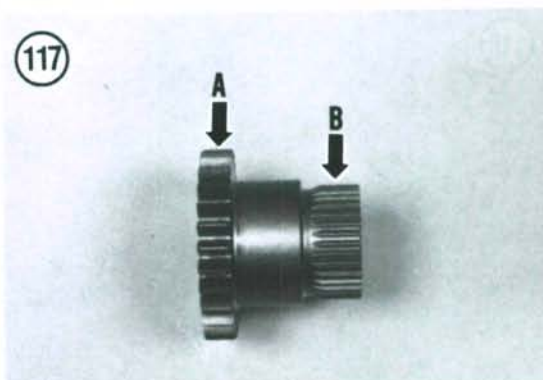
12. Remove the inner and outer rotors from the oil pump body and install both rotors onto the driven gear shaft (**Figure 116**) in the oil pump cover.

13. Install the oil pump cover body on to the assembled parts and install the screws (**Figure 111**). Tighten the screws securely.

14. Install the E-clip and washer (**Figure 110**) on to the driven gear shaft.

15. Inspect the primary gear as follows:

- Inspect the gear teeth (A, **Figure 117**) and splines (B, **Figure 117**) for wear or damage, replace if necessary.
- Measure the inside diameter of the bushing at each end of the gear. Refer to **Figure 118** and **Figure 119**. Replace the primary drive gear if either bushing is worn to the service limit dimension listed in **Table 1** or greater.
- Measure the outside diameter of the crankshaft (**Figure 120**) at the 2 locations where the primary drive gear bushings ride. Replace the crankshaft if worn to the service limit dimension listed in **Table 1** or less.



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